CONSIDERATION OF AN EFFORT CONTROL PLAN FOR THE MASSACHUSETTS COMMERCIAL LOBSTER FISHERY

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I. INTRODUCTION

The American lobster fishery is the most economically important fishery conducted within the territorial waters (out to 12 miles) of the Commonwealth. Regional lobster management was officially transferred to the Interstate Fisheries Management Program (ISFMP) of the Atlantic States Marine Fisheries Commission (ASMFC) in 1999. Prior to 1999, lobsters were managed by federal process under the New England Fishery Management Council.

The lobster fishery is one of the first in our state to be managed through limited entry; procedures to enter and exit the fishery are well documented by Division of Marine Fisheries (*MarineFisheries*) regulations and policies, which have been operative since 1981. Because of the owner/operator nature of this fishery, the value of the resource, and the ancestral roots of lobster fishing, proposed changes in how we manage this fishery have often been met with heavy criticism from the industry.

The most recent assessment of Atlantic coast lobster stock conditions, which included data thru '98 but was not published and peer reviewed until 2000 (Stock Assessment Report No. 00-01 of the Atlantic States Marine Fisheries Commission, July 2000) indicates that more controls on fishing are required to prevent resource depletion and subsequent declines in landings. The ASMFC responded by developing new Addenda to the Interstate Fishery Management Plan (FMP). The plan has been modified several times since first being prepared in 1978 with the last revision occurring in 2002 (Addendum 3 to Amendment 3).

Amendment 3 introduced area management along the coast in December 1997 and identified seven separate management regions from Maine to Maryland. Area designations are based on the percent contribution from different stock components, but the manner in which the fisheries have been prosecuted were also taken into consideration. Each is designated a Lobster Conservation Management Team (LCMT) composed of fishermen whose task is to develop management recommendations for their areas that achieve the objectives of the plan. Although eleven FMP objectives exist (Appendix 1), most management strategies focus on reaching only one: stock egg-production levels associated with F10%. This overfishing definition relates fishing mortality (F) to egg production; the resource is considered overfished when the egg production of a recruiting female summed over its fishable lifespan falls below 10% of what it would be if no fishing occurred. An extensive description of the plan was aired in the Division's *Third & Fourth Quarters July – December 2001* Newsletter and again in the *Second & Third Quarters April – September 2002 issue*, available on our website at www.mass.gov/marinefisheries.

The Division of Marine Fisheries seeks to craft uniform rules for the Commonwealth where practical. Uniform management measures are being considered that would be applied statewide to all Lobster Management Areas in Massachusetts. Meanwhile, ASMFC's Policy Board expects the Commonwealth to enact surrogate measures as needed to achieve sufficient conservation to meet requirements of the Interstate FMP. *MarineFisheries* has discussed its plans at several public meetings held this past fall and winter in Gloucester, Sandwich, and Falmouth. It will continue to meet with Massachusetts fishermen to help refine its plans through spring and will

air its completed proposals at 2003 public hearings. Following public hearings, *MarineFisheries* will provide recommendations to the Massachusetts Marine Fisheries Advisory Commission for their consideration.

II. STATEMENT OF PROBLEM

Fishery performance compared over the past decade is showing sign of strain, dormant effort is nearly twice that of actual effort, and the demise of the New England groundfish fishery and other fisheries traditionally plied by small day-boat fishermen all factor into the ingredients that will likely cause a surge in lobster fishing effort in the near future.

Amendment 3 rules implemented so far in most Areas fail to address increases in fishing mortality. Primary focus is on protection of brood stock by increasing minimum sizes and v-notching female egg-bearing lobster. These actions delay lobster mortality thereby allowing additional time for breeding and increased spawning potential, but they do not control fishing effort or regulate fishing mortality. Managing the number of traps fished, developing quotas, implementing trip limits, and adding closed seasons are the types of controls that influence fishing effort and mortality rates.

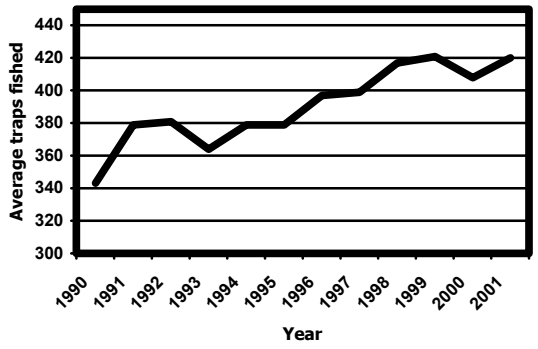

Figure 1. Average number of traps fished per year.

We cannot ignore the basic benefits of simply preventing effort from increasing. Based on past performance in the fishery (Figure 1) and future conditions for small-boat fishermen in New England, we could anticipate that without any effort controls the number of traps fished could rise 20-30% or more from current levels before the end of the next decade. A goal of the Interstate plan is to reduce fishing effort to complement other management measures such that fishing mortality (F) is reduced, abundance and CPUE increased, and the resource size structure (and thereby egg production) is improved so that yield per recruit is optimized.

III. BACKGROUND: REGULATORY AND MANAGEMENT CONSIDERATIONS

(A) *MarineFisheries* Actions to Control Effort

Anticipating the need to control expansion of fishing effort, *MarineFisheries* has recently taken administrative steps to constrain growth in the fishery:

A temporary moratorium on coastal lobster license transfers has been implemented. After February 7, 2003, no applications for transfer of existing coastal commercial lobster permits shall be accepted. A moratorium on transfers shall remain in effect until after spring public hearings when effort control regulations may be approved as a means to accomplish the goals and objectives of the interstate lobster management plan for 2004 and beyond. Exceptions will be made to allow the transfer of permits held by individuals that began the permit transfer process prior to 2003; we will also continue to allow posthumous transfer of permits from one family member to another.

An offshore lobster permit moratorium to prevent permit splitting in the lobster fishery has been initiated. Some holders of both the state's coastal and offshore federal lobster permits have been increasing effort by separating the permits; a second vessel is brought in to fish one of the two permits. In these cases, the permits are being assigned to two different vessels in hopes of fishing 800 traps in coastal waters and 800 traps in federal waters. In order to accomplish this separation of permits the permit holder must apply for a new offshore state permit. Beginning February 7, 2003, only renewals of offshore lobster permits for vessels authorized to fish traps are allowed; this is consistent with federal rules where limited entry to the offshore fishery is already in place.

A freeze was placed on the re-issuance of retired licenses. As of June 6, 2002, *MarineFisheries* no longer issues these permits.

(B) Interstate and Federal Efforts to Control Fishing Effort

Effort reduction plans have been discussed and/or proposed in varying degrees by the LCMTs in Area 3 (offshore fishery), Outer Cape Cod, and Area 2. These plans are in various stages of development and are not consistent in their goals or in their details. Uneven treatment of fishing effort among management zones will add to the complexity of administering fisheries within the state. Furthermore, our largest lobster producing management area, Area 1, does not address effort reduction. A lack of effort control in Area 1 will undoubtedly result in displacement of effort from areas where effort is being reduced to Area 1. Consequently, the Area 1 plan likely will fail to meet management objectives.

Massachusetts is required to enact an effort control plan in Outer Cape Cod with a goal of 25% trap reduction by 2008. The OCC plans were crafted with state oversight and the Commonwealth initially did not insist on uniform rules between areas. At the time this seemed logical, because the rebuilding targets for fishermen of southern New England (Area 2 - New York, Connecticut, RI, and MA fishermen south of Cape Cod) were far different from that of northern New England (Area 1 - Maine, NH, and northern Massachusetts). *MarineFisheries* now seeks to craft uniform rules for the Commonwealth where practical. A common effort control plan should be considered that would be applied to all Lobster Management Areas in Massachusetts, and adjacent waters of Areas 1, 2, and Outer Cape Cod.

MarineFisheries has already considered the dilemma posed by various effort control/reduction plans. The industry-crafted effort reduction program for the OCC is an innovative and unprecedented strategy that would issue license-specific trap allocations based on a fisherman's year-2000 reported maximum traps. Consequently, fishermen without year-2000 history in this area would be prohibited from fishing there unless traps were transferred to them from "qualified" OCC fishermen. An individual trap-transfer program would have to be created by *MarineFisheries* to accommodate the trap transfers.

MarineFisheries has opted to devise an alternative, similar in design to the Outer Cape Cod plan that could be adopted for the entire state. This plan will halt overall growth in the already effort-laden commercial lobster fishery and prevent a shift of effort into Area 1 from other Lobster Management Areas. The latter includes fishermen displaced from Outer Cape Cod and Area 3 where effort control plans are required under the interstate plan, or from Area 2 where a stock collapse "crisis" prompted the Area 2 LCMT to recommend initiation of an effort control plan to cap effort and measures to help halt further stock decline.

Area 3, the offshore lobster fishery, will not be affected by this statewide plan. Consistent with Addendum 2 to Amendment 3 of the FMP, NOAA Fisheries is expected to enact effort control regulations for the offshore fishery (LCMA-3) before summer of 2003. To accommodate this mid-year change for Area 3 fishermen, federal permits that authorize fishing in Area 3, will expire on August 31, 2003, and eligible fishermen are expected to have the opportunity to apply for a specific trap allocation based on the vessel's fishing history.

(C) Massachusetts Lobster Permit History

The state's fisheries statistics program provides necessary historical data to develop management options. Commercial lobster fishermen have been required to report their annual catch to *MarineFisheries* since the 1950s and electronic versions of their catch reports have been stored by the agency since the 1980s. Beginning in the 80s, we have conducted an annual audit of lobster catch reports, which requires lobster fishermen to reconcile their reports with documentation provided by wholesale dealers. The audit program has helped improve reliability of catch report information; total reported harvest by commercial lobstermen is substantiated within (+/-) 1%.

As result of changes to our lobster license program in the 1980s and 1990s, the number of coastal permits has declined from an all time high of 1,877 in 1987 to 1,540 in 2002. Effort among lobster trap fishermen, including both coastal and offshore permit holders has fluctuated over the past five years. The current system allows orderly turnover in the industry. Only those licenses that have been actively fished for four out of the past five years may be transferred, however, "actively fished" is not defined in any statute, regulation, or policy. Consequently, permit holders who demonstrate any level of landings have been considered active and may transfer their permits to new entrants in the fishery who are allowed to fish their permit to the maximum level of effort of 800 traps regardless of the previous history of the permit. The person to whom the permit is transferred must prove that he/she has at least one-year experience in the commercial lobster trap fishery or two years of experience in commercial fishing. All permit holders must be owner/operators of the business.

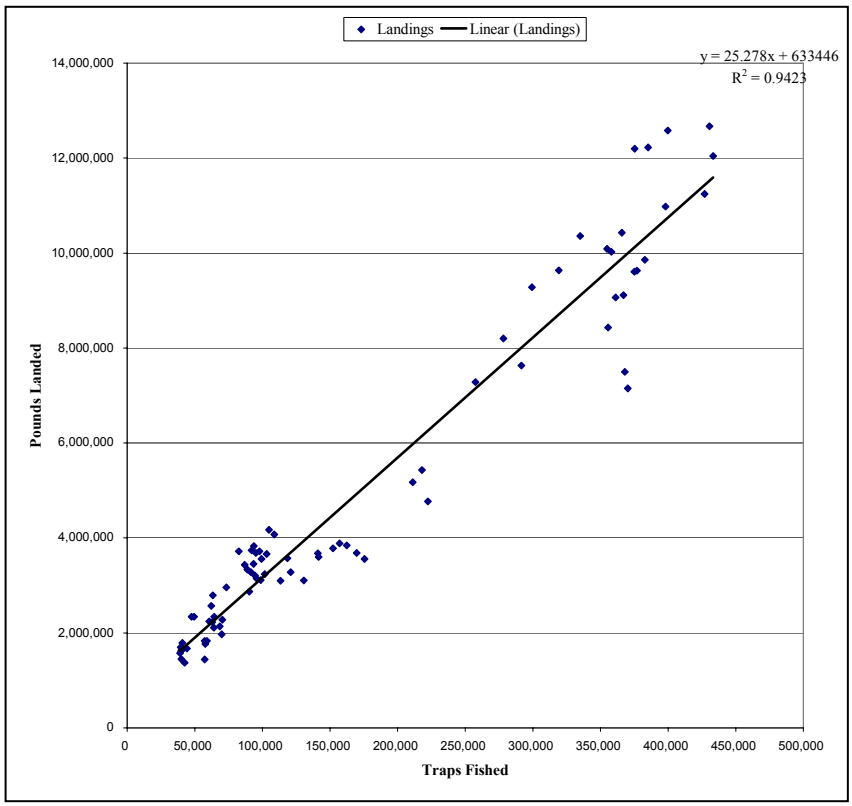

Figure 2. Relationship between traps fished and lobster landings (1922-2001) in Massachusetts coastal waters.

(D) Long-term Trends in Fishing Effort

Further evaluation to determine the relationship between harvest and number of traps fished was completed by plotting catch (landings) data in relation to traps based on catch report information collected during the period 1922-2001 (Figure 2**).** Assuming constant resource conditions during the time period, the analysis suggests a strong linear relationship between pounds of lobsters landed and number of traps fished.

Table 1. Traps fished among commercial lobster permit holders (coastal and offshore permit holders) fishing in LCMAs 1,2 and OCC 1997-2001.

Trap Interval	1997	1998	1999	2000	2001
DNF *	410	399	436	421	439
1-24	61	54	52	47	47
25-49	85	83	77	81	80
50-99	104	108	98	110	101
100-199	146	134	138	130	121
200-299	124	112	99	102	105
300-399	83	107	79	82	74
400-499	95	94	110	101	104
500-599	68	60	63	42	53
600-699	119	111	105	109	93
700-799	50	63	68	76	86
800	135	151	152	222	216
> 800 †	80	84	86	23	16
Totals	1,560	1,560	1,563	1,546	1,535
Total traps fished	470,436	491,292	483,725	468,146	457,937
Average traps among active fishermen	409	423	429	416	418

† Coastal and Offshore permit holders fishing outside of state waters but inside LCMAs 1,2 and OC

Considerable potential exists for the number of traps fished in coastal waters to increase (as previously discussed). Such a situation could be threatening given present stock conditions, the waning economic efficiency of the fishery, and the growing concern for undesirable gear interactions.

In 2001, Massachusetts issued 1,535 commercial lobster permits for pot fishing, of which 439 permit holders reported that they did not fish. The remaining fishermen fished an average of only 418 traps, although current rules allow them to fish up to 800. Only 216 fishermen reported fishing the maximum 800 traps. If all 1,535 permit holders fished at the maximum level allowed, total number of traps would total 1,228,000 traps (1,535 permits x 800 traps).

Table 1 reveals three notable groups in 2001: 1) latent or "un-fished" permits (n=439); 2) fishermen who fish nominal to average numbers of traps ranging from 1 to 399 traps (n=528), and 3) those that fish 400 traps or greater (n=568) up to the maximum allowed 800 traps. These trends are similar in other years.

Average number of traps per active fishermen has increased annually over the past decade, rising 23% from 1990 to 2001 (Figure 1); annual average rate of increase during the period is about 2%. About 50 permits per year are transferred from one fisherman to another.

(E) Outlook for Increases in Fishing Effort Many fishermen currently active in the fishery are from the "baby boom" generation, and are middle-aged with expectation of retirement before the end of the next decade (Figure 3). The median age of MA coastal permit holders is 51. Combinations of large number of soon-to retire lobstermen and displaced fishermen from other fisheries will result in increased lobster effort if left uncontrolled. The most notable fishery that will see an exodus is the multispecies groundfish fishery that is expected to suffer severe cuts in fishing opportunities when the New England Fisheries Management Council enacts Amendment #13 by May of 2004. Industry watchers expect

a combination of area closures and reductions in federally issued Days-at-sea that will force more fishermen out of the groundfish fishery. Furthermore, quota cuts or reduced fishing opportunities in certain quota-driven fisheries (sea bass, tautog, striped bass, scup, summer flounder) will force fishermen dependent on these species to seek alternatives or motivate them to become more reliant on lobster fishing.

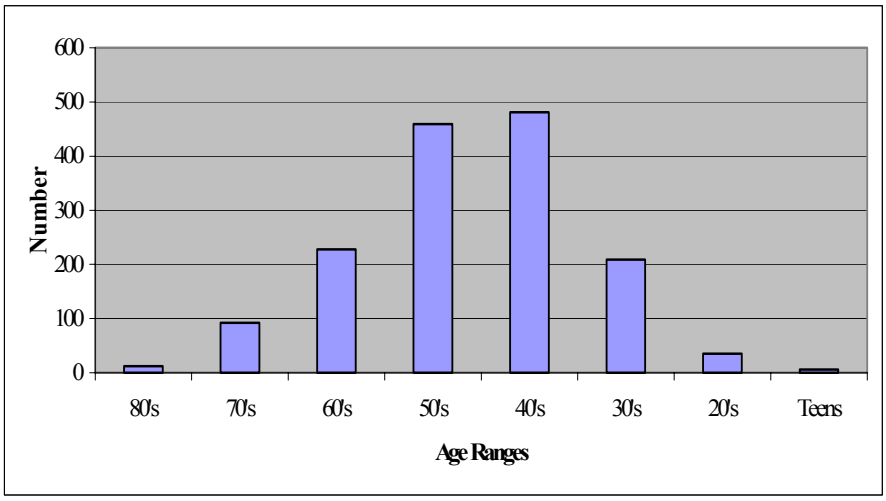

Figure 3. Age of all coastal lobstermen

IV. EFFORT CONTROL PLAN: OBJECTIVES & DEVELOPMENT

(A) Objectives

This effort control plan is comprised of two parts: a trap limit program and transfer program. Program objectives focus on several areas including administration, enforcement, biological and economic impacts, and industry acceptance. Administratively, the program needs to be easily implemented, monitored, and evaluated without adding significantly to agency costs. Rules must be well defined, easily understood by participants, and provide practical measures for enforcement.

The following seven objectives have guided *MarineFisheries* staff in the development of alternatives to control effort in the lobster fishery:

1. Increases of traps in state waters must be prevented immediately;

2. Reduction of traps shall be reduced over time to reduce fishing mortality and achieve desired management targets;

3. Minimize disruption of current fishing activity;

4. Allow existing permit holders continued access to the fishery with opportunity to scale their operations up or down;

5. Trap levels on an individual basis and for the fishery as a whole should achieve a level of economic efficiency that is sensible to the majority of fishery participants without causing disruption to the marketplace;

6. Plan must be applicable to all fishermen licensed by the Commonwealth in state waters and adjacent federal waters (in Areas 1,2, and Outer Cape Cod) under the oversight of the Atlantic States Marine Fisheries Commission;

7. To the degree practical, the program should treat current fishery participants fairly and equitably (fishery participants are those who are commercial fishermen and fish for lobsters for commercial purposes).

(B) Plan Evolution

MarineFisheries staff has studied a number of alternatives to accomplish the seven objectives. During fall and winter of 2002-2003, meetings were held with fishermen to discuss alternatives for capping effort. Plans have evolved during this time, and this evolution has shifted the emphasis from more rigid allocation schemes to more flexible.

The first plan drafted by *MarineFisheries* for internal review included a tiered-approach to trap allocations based on one's average poundage over a five-year period. There were four tiers (trap amounts): 150, 300, 500, and 650, with permit holders with insufficient poundage receiving a minimum number of traps (150). This plan reduced many permit holders' potential allocation from between 650 and 800 traps down to 650, while allocating a minimum number of traps (150) to permit holders who did not fish or landed minimal poundage (under 3,000 lbs. on average). Upon transfer of any traps fishermen would be required to reduce their remaining traps fished to the next lowest tier. After careful review, *MarineFisheries* staff felt this plan might be inappropriate and too constraining for the fishermen who might seek to scale their level of fishing up or down.

A second draft of this plan made changes to satisfy many of the public comments and staff concerns. These changes included allowing transferability of traps (between fishermen), adding a new lowest tier of 150 traps that are non-transferable, and creating a top tier of 800 traps for fishermen landing an average of at least 33,000 lbs. Response to this modified draft was mixed. Many active fishermen planned to "appeal" their allocation because they felt the criteria used to assign them to tiers were too broad. For example, the range of average landings among fishermen eligible for the 500-trap tier was 10,000 to 19,999 lbs. Many fishermen whose average landings were on the upper end of each poundage range were disenfranchised by the proposal, especially if their trap allocation was less than their recent level of traps fished.

A third draft of the plan attempted to satisfy some of these new concerns. Instead of tiers based on a range of poundage, *MarineFisheries* staff developed area-specific equations (Figure 4) between traps fished and landings so each fisherman would get a number of traps commensurate with their average landings (not to exceed their reported maximum number of traps fished) over the five-year period 1997-2001. Under this scenario, fishermen would get a specific trap

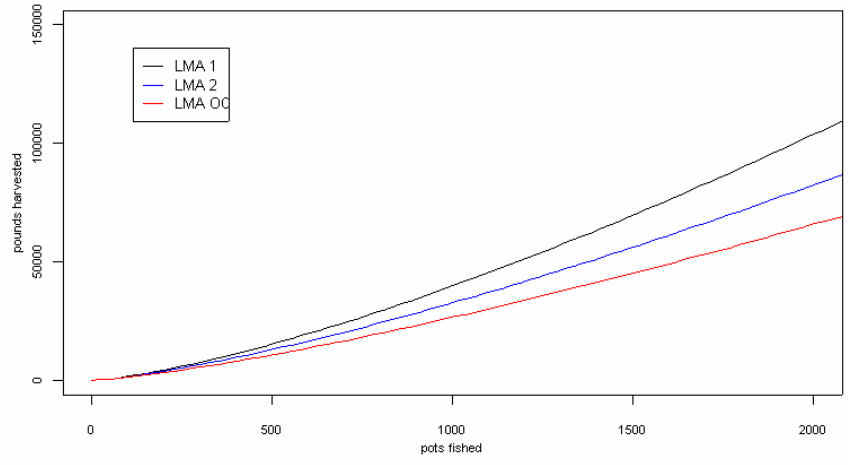

Figure 4. Relationship between the number of traps fished and pounds of lobster harvested for ASMFC Lobster Conservation Management Areas 1, 2 and Outer Cape Cod, respectively.

allocation based on their individual level of average landings (See Appendices 2a, 2b, and 2c for the output of the equations depicting average landings for given levels of traps). While some fishermen favored this approach, many opposed the plan - especially those whose landings were below average for a given level of traps.

There has been vocal objection to allocating traps based on landings. Many fishermen argued against using landings as the key measure for trap allocation and cited some reasons their landings would be below average: their fishing season is shorter due to choice or personal circumstances; lobster abundance and consequent catch rates are lower in their area; or their skill or equipment is below average. *MarineFisheries* has received reports of allegations of under-reporting of landings among some fishermen; fishermen who under-report may be involved in cash-sales and not receive invoice slips or may be selling to non-licensed dealers.

In the view of *MarineFisheries* staff, catch statistics of pounds harvested may be more dependable than traps reported fished. The number of traps reported fished is not one of the agency's audit elements and therefore it is likely to be less reliable, and makes for a poorer standard to judge a fisherman's actual level of fishing activity. Remarkably, one prominent official within the Massachusetts Lobstermen's Association testified in opposition to the plan and claimed that he routinely commits perjury each year when he over-reports his traps fished on his annual catch report, fearful that he would lose fishing opportunities and growth potential if - or when - management of trap limits became tied to personal performance. Similar comments were published in the report of the Lobster Summit held at the New England Aquarium in 1997 (New England Aquarium Aquatic Forum Series Report 97-2).

If the decision is made to enact new rules that allocate differential-fishing opportunities based on past performance (i.e., quantities of traps), the choice of statistics - reported traps vs. reported landings will be a dilemma. The challenge for *MarineFisheries* is to create an allocation scheme that meets objectives to cap traps fished immediately, minimize disruption of current participants, and treat current fishery participants fairly and equitably.

If *MarineFisheries* adopts a plan that relies on reported traps as the basis for future allocation, opponents will likely argue that fishermen who over-reported traps would be rewarded; thereby punishing honest fishermen who reported accurately without inflating trap numbers. However, there is no way to gauge the level or frequency of over-reporting. Moreover, from a political perspective it will be more marketable to limit fishermen to their "reported" level of traps fished than to a level that was calculated through a complex formula involving poundage.

IV. EFFORT CONTROL PLAN: PROPOSED PRINCIPLES & DETAILS

(A) History-Based Trap Limit Program

MarineFisheries proposes the following statewide trap limit program for the commercial lobster fishery as part of the effort control plan. It will allocate traps allowed to be fished to each permit holder based on the permit's unique fishing history during 1997 through 2001 with traps fished, poundage, and area fished as plan components. Each fisherman will be given his average number of traps reported fished, but is limited in transferable traps to a number of traps that is reflective of his average poundage.

Effective January 2004, each permit holder will be granted their *Trap Allocation*. This would apply to all Massachusetts coastal and all offshore permit holders authorized to fish lobster traps and will be based on the average maximum number of traps reported fished during the years 1997 through 2001. (Years with no activity will not be included in the calculation of average).

MarineFisheries will review each permit holders catch reports and trap tag purchases for years 1999 through 2001 to ensure permit holders purchased and used trap tags as required by 322 CMR 6.31 (Note: trap tags were

not required prior to 1999). For purposes of calculating a *Trap Allocation*, any year where the permit holder reported fishing more traps than the number of tags purchased (or issued by *MarineFisheries)*, the number of trap tags purchased will be used in lieu of their reported traps. Simply put, if a fisherman reported fishing traps but was issued no tags for that year, or was issued a lower number of tags than what was reported fished, then the presumption is the report was fraudulent.

Any permit holder who received their permit off the waiting list during 2001 with no fishing performance in 2001 may appeal to *MarineFisheries* for a modified *Trap Allocation* based on their 2002 history.

Strict qualifying criteria will be established for obtaining trap allocation in the Outer Cape Cod Area, these rules will resemble those approved under Amendment #3 of the interstate plan that *MarineFisheries* has not yet adopted.

(B) Transfer Program

In addition to the initial determination of traps allocated to each permit, this effort control program will regulate all permit and trap transfers through a transfer program. In addition to the *Trap Allocation,* each permit holder will be given a *Transferable Allocation.* The *Transferable Allocation* will allocate the number of traps that may be transferred based either on the *Trap Allocation* or the number of traps allowed to be fished as calculated by a modeled relationship of traps and landings within each LCMA (see Appendices 2a, 2b & 2c), whichever is lower. This *Transferable Alloction* value represents a maximum number of traps each permit holder could transfer to another fisherman when transferring his whole business or a portion of his allocation.

Transfers between fishermen would be allowed in minimum increments of 50 traps, except for those individuals whose *Transferable Allocation* is less than 50 traps; those with less than 50 traps will be allowed to transfer their entire number of traps in combination with their permit. No permit holder would be allowed to have fewer than 50 traps after a transfer takes place; the *Transferable Allocation* of each permit associated with the transaction shall be modified accordingly. In other words, a permit holder would be left with a number of traps equal to their original *Transferable Allocation* minus any traps transferred from them; likewise, a permit holder receiving traps would be left with a number of traps equal to their original *Transferable Allocation* plus any traps transferred to them. Traps transferred between fishermen would be transferable in the future by the new owner. If traps are never transferred, the fisherman's *Trap Allocation* will remain in effect (unless *MarineFisheries* enacts a fishery-wide trap reduction in a given LCMA).

A trap transfer "charge" may be established where *MarineFisheries* retains a percentage of each trap transaction for conservation purposes, and the rate may differ among areas and be dependent on stock and fishery conditions.

Trap tags may only be transferred within a LCMA, not between areas.

Trap tag leasing will be prohibited. Only permanent transfers between fishermen will be allowed.

Fishermen may only transfer tags through the process established by *MarineFisheries.* Any permit holder found leasing or transferring trap tags without authorization will have their permits revoked.

Existing permit transfer rules (322 CMR 7.06) will be amended to eliminate minimum performance standards. The requirement that permits be fished 4 of the last 5 years to be eligible for a transfer may not be warranted.

Cases A through G in Table 2 below present examples of how different permit holders' history of traps and pounds are used in this two-stage approach to trap allocation for 2004 and beyond. In cases A, B, E, and F the *Trap Allocation* is greater than the *Transferable Allocation.* The *Transferable Allocation* is lower because reported landings fall below the typical performance for that level of traps; see Appendices 2a, 2b & 2c. In

contrast, cases C, D, and G had landings that were above the typical performance, so their *Transferable Allocation* is equivalent to their *Trap Allocation.*

Table 2. Case examples of allocation rules in trap limit program.

Case	Reported Traps per Year 1997	1998	1999	2000	2001	Average Traps (97-01)	Trap Allocation	Reported average pounds (97-01)	Pound-based predicted trap level	Transferable Allocation
A	0	21	15	0	0	18	18	81	11	11
B	70	800	315	520	272	395	395	4,822	216	216
C*	400	600	0	0	0	500	500	17,625	556	500
D*	140	130	175	200	200	169	169	9,826	363	169
E	100	200	200	200	300	200	200	1,365	86	86
F	800	800	800	800	800	800	800	16,362	527	527
G**	800	800	800	800	800	800	800	29,997	819	800

(B) Analysis of Overall Trap Totals to Meet Management Objectives

This effort control plan appears to meet three of the key objectives (1, 3, and 7) - to cap traps immediately, minimize disruption of current participants, and treat fishery participants fairly and equitably. Allocated traps for each LCMA in 2004 will be close to that fished in recent years (Table 3).

Table 3. Effect of effort control plan on allocated traps in Areas 1, 2, and Outer Cape Cod.

LCMA	# of permits assigned	Traps reported fished in 1998	Traps reported fished in 2001	Traps reported fished averaged over 1997-2001	Change relative to 1998	Change relative to 2001	Transferable trap numbers	Change relative to 1998	Change relative to 2001
1	1,046	387,953	369,908	376,532	-3%	2%	296,758	-23%	-20%
2	230	77,602	68,753	68,305	-13%	-1%	56,481	-28%	-18%
OCC	59	25,147	19,276	20,673	-18%	7%	17,786	-29%	-8%
DNF	231	0	0	0					
Totals	1,566	491,292	457,937	465,509	-5%	2%	371,025	-24%	-19%

For Outer Cape Cod, traps allocated for 2004 will be 18% lower than 1998 levels; for Area 1 the estimated reduction is 3%; and for Area 2 it is estimated at 13%. These numbers are subject to minor change because *MarineFisheries* designation of a permit holder's area may be inaccurate in some cases. Once the plan is enacted shifting traps between areas will not be allowed.

This trap-based plan is considered preferable to the previously discussed and publicized 5-tier poundage-based plan because the poundage-based plan allows for growth over current levels: 8% increase over 2001 trap totals (Table 4). Furthermore, any plan that allocates traps to un-fished permits runs the risk of allocating some amount of additional traps (up to 35,560 traps) to any of the three possible areas and this may prevent conservation goals from being met.

Table 4. Projected number of traps that would have been allowed in 2001 by a 5-tier poundage based program.

Avg. Annual Landings	Tier	Number of Permits	Trap Allocation	Number of Traps
0 - 999 lbs	1a	567	150	85,050
1,000 - 2,999 lbs	1b	237	150	35,550
3,000 - 9,999 lbs	2	315	350	110,250
10,000 - 19,999 lbs	3	233	500	116,500
20,000 - 32,999 lbs	4	135	650	87,750
> 33,000 lbs	5	78	800	62,400
Totals		1,565		497,500

Finally, a poundage-based allocation system with such wide qualifying ranges is expected to alter current fishing levels more than the trap-based system. Based on comments received at public meetings, the poundage-based plan is expected to motivate a substantial number of fishermen to "appeal" their allocation.

Many fishermen who have un-fished or lightly fished permits may prefer the 5-tier poundage-based plan because it represents an allocation of traps larger than they currently fish. However, as noted above, granting traps to un-fished permit holders will result in the overall trap numbers increasing and could stop some of the Interstate Plan's mandated goals from being reached, such as the 25% reduction in Outer Cape Cod. Table 4 shows the number of traps that would have been allowed in 2001 by this 5-tier poundage-based permit program. The maximum number of traps for the 1,565 permit holders would have been 497,500, an increase of 50,000 over 2001.

VI. CONCLUSIONS

This plan has been aired to focus groups of Massachusetts lobster permit holders, most of whom have served as representatives on the LCMTs. The Plan will cap the number of lobster traps fished in waters of the Commonwealth to current levels actually fished. This is a significant measure because it ensures that the benefits gained by other management measures in the Interstate FMP will not be eroded by increased fishing effort. All previous actions to reach F10% are predicated on the assumption that fishing effort and fishing mortality since 1998 remains the same. We encourage all other jurisdictions to entertain implementation of effective effort control as a foundation for management of American lobster as defined in Objective 2 of Amendment 3.

Because of the time needed to complete both our public hearing process and rule-making, and to develop and have available the proper permit materials at the start of a fishing year, we would not consider launching a new trap control plan prior to the 2004 fishing year. Likewise, modifications that adjust initial allocations, improve provisions for trap transferability between permit holders, and other possible considerations raised by industry may occur before the plan is finalized.

VII. APPENDICES

Appendix 1. Eleven Objectives of the Interstate Management Plan for Atlantic Coast Lobster

Objective 1: Protect, increase or maintain, as appropriate, the brood stock abundance at levels, which would minimize risk of stock depletion and recruitment failure.

Objective 2: Develop flexible regional programs to control fishing effort and regulate fishing mortality rates;

Objective 3: Implement uniform collection, analysis, and dissemination of biological and economic information; improve understanding of the economics of harvest;

Objective 4: Maintain existing social and cultural features of the industry wherever possible;

Objective 5: Promote economic efficiency in harvesting and use of the resource;

Objective 6: Minimize lobster injury and discard mortality associated with fishing;

Objective 7: Increase understanding of biology of American lobster, improve data, improve stock assessment models; improve cooperation between fishermen and scientists;

Objective 8: Evaluate contributions of current management measures in achieving objectives of the lobster FMP;

Objective 9: Ensure that changes in geographic exploitation patterns do not undermine success of ASMFC management program;

Objective 10: Optimize yield from the fishery while maintaining harvest at a sustainable level;

Objective 11: Maintain stewardship relationship between fishermen and the resource.

Appendix 2a. LCM Area 1 specific trap allocations based on individual fishermen's unique level of average landings.
Find your average annual landings for the years 1997-2001 in the appropriate table for your area to see your predicted trap value.

Average Pounds	Traps Allocated	Average Pounds	Traps Allocated	Average Pounds	Traps Allocated	Average Pounds	Traps Allocated	Average Pounds	Traps Allocated
0	0	5,900	251	11,800	415	17,700	558	23,600	688
100	13	6,000	254	11,900	418	17,800	560	23,700	690
200	21	6,100	257	12,000	420	17,900	562	23,800	692
300	29	6,200	260	12,100	423	18,000	565	23,900	694
400	35	6,300	263	12,200	425	18,100	567	24,000	696
500	42	6,400	266	12,300	428	18,200	569	24,100	699
600	47	6,500	269	12,400	430	18,300	572	24,200	701
700	53	6,600	272	12,500	433	18,400	574	24,300	703
800	58	6,700	275	12,600	436	18,500	576	24,400	705
900	64	6,800	278	12,700	438	18,600	578	24,500	707
1,000	69	6,900	281	12,800	441	18,700	581	24,600	709
1,100	74	7,000	284	12,900	443	18,800	583	24,700	711
1,200	79	7,100	287	13,000	446	18,900	585	24,800	713
1,300	83	7,200	290	13,100	448	19,000	587	24,900	715
1,400	88	7,300	293	13,200	451	19,100	590	25,000	717
1,500	92	7,400	296	13,300	453	19,200	592	25,100	720
1,600	97	7,500	298	13,400	456	19,300	594	25,200	722
1,700	101	7,600	301	13,500	458	19,400	596	25,300	724
1,800	106	7,700	304	13,600	460	19,500	599	25,400	726
1,900	110	7,800	307	13,700	463	19,600	601	25,500	728
2,000	114	7,900	310	13,800	465	19,700	603	25,600	730
2,100	118	8,000	313	13,900	468	19,800	605	25,700	732
2,200	122	8,100	316	14,000	470	19,900	608	25,800	734
2,300	126	8,200	319	14,100	473	20,000	610	25,900	736
2,400	130	8,300	321	14,200	475	20,100	612	26,000	738
2,500	134	8,400	324	14,300	478	20,200	614	26,100	740
2,600	138	8,500	327	14,400	480	20,300	616	26,200	742
2,700	142	8,600	330	14,500	482	20,400	619	26,300	744
2,800	146	8,700	333	14,600	485	20,500	621	26,400	747
2,900	149	8,800	335	14,700	487	20,600	623	26,500	749
3,000	153	8,900	338	14,800	490	20,700	625	26,600	751
3,100	157	9,000	341	14,900	492	20,800	628	26,700	753
3,200	160	9,100	344	15,000	495	20,900	630	26,800	755
3,300	164	9,200	346	15,100	497	21,000	632	26,900	757
3,400	168	9,300	349	15,200	499	21,100	634	27,000	759
3,500	171	9,400	352	15,300	502	21,200	636	27,100	761
3,600	175	9,500	355	15,400	504	21,300	638	27,200	763
3,700	178	9,600	357	15,500	506	21,400	641	27,300	765
3,800	182	9,700	360	15,600	509	21,500	643	27,400	767
3,900	185	9,800	363	15,700	511	21,600	645	27,500	769
4,000	189	9,900	365	15,800	514	21,700	647	27,600	771
4,100	192	10,000	368	15,900	516	21,800	649	27,700	773
4,200	196	10,100	371	16,000	518	21,900	652	27,800	775
4,300	199	10,200	373	16,100	521	22,000	654	27,900	777
4,400	202	10,300	376	16,200	523	22,100	656	28,000	779
4,500	206	10,400	379	16,300	525	22,200	658	28,100	781
4,600	209	10,500	381	16,400	528	22,300	660	28,200	783
4,700	212	10,600	384	16,500	530	22,400	662	28,300	785
4,800	216	10,700	387	16,600	532	22,500	664	28,400	787
4,900	219	10,800	389	16,700	535	22,600	667	28,500	789
5,000	222	10,900	392	16,800	537	22,700	669	28,600	791
5,100	225	11,000	395	16,900	539	22,800	671	28,700	793
5,200	229	11,100	397	17,000	542	22,900	673	28,800	795
5,300	232	11,200	400	17,100	544	23,000	675	28,900	797
5,400	235	11,300	402	17,200	546	23,100	677	29,000	799
5,500	238	11,400	405	17,300	549	23,200	679	>29,030	800
5,600	241	11,500	408	17,400	551	23,300	682		
5,700	244	11,600	410	17,500	553	23,400	684		
5,800	247	11,700	413	17,600	556	23,500	686		

Appendix 2b. LCM Area 2 specific trap allocations based on individual fishermen's unique level of average landings.

Find your average annual landings for the years 1997-2001 in the appropriate table for your area to see your predicted trap value.

Average Pounds	Traps Allocated	Average Pounds	Traps Allocated	Average Pounds	Traps Allocated	Average Pounds	Traps Allocated	Average Pounds	Traps Allocated
0	0	6,100	279	12,200	466	18,300	628	24,400	776
100	14	6,200	283	12,300	468	18,400	630	24,500	778
200	23	6,300	286	12,400	471	18,500	633	24,600	781
300	30	6,400	289	12,500	474	18,600	635	24,700	783
400	38	6,500	293	12,600	477	18,700	638	24,800	785
500	44	6,600	296	12,700	480	18,800	640	24,900	788
600	51	6,700	299	12,800	482	18,900	643	25,000	790
700	57	6,800	303	12,900	485	19,000	645	25,100	792
800	63	6,900	306	13,000	488	19,100	648	25,200	795
900	68	7,000	309	13,100	491	19,200	650	25,300	797
1,000	74	7,100	312	13,200	494	19,300	653	25,400	799
1,100	79	7,200	316	13,300	496	19,400	655	>25,426	800
1,200	84	7,300	319	13,400	499	19,500	658		
1,300	89	7,400	322	13,500	502	19,600	660		
1,400	94	7,500	325	13,600	504	19,700	663		
1,500	99	7,600	329	13,700	507	19,800	665		
1,600	104	7,700	332	13,800	510	19,900	668		
1,700	109	7,800	335	13,900	513	20,000	670		
1,800	114	7,900	338	14,000	515	20,100	673		
1,900	118	8,000	341	14,100	518	20,200	675		
2,000	123	8,100	344	14,200	521	20,300	678		
2,100	127	8,200	347	14,300	523	20,400	680		
2,200	132	8,300	351	14,400	526	20,500	683		
2,300	136	8,400	354	14,500	529	20,600	685		
2,400	141	8,500	357	14,600	532	20,700	688		
2,500	145	8,600	360	14,700	534	20,800	690		
2,600	149	8,700	363	14,800	537	20,900	692		
2,700	153	8,800	366	14,900	540	21,000	695		
2,800	157	8,900	369	15,000	542	21,100	697		
2,900	162	9,000	372	15,100	545	21,200	700		
3,000	166	9,100	375	15,200	548	21,300	702		
3,100	170	9,200	378	15,300	550	21,400	705		
3,200	174	9,300	381	15,400	553	21,500	707		
3,300	178	9,400	384	15,500	556	21,600	709		
3,400	182	9,500	387	15,600	558	21,700	712		
3,500	186	9,600	390	15,700	561	21,800	714		
3,600	189	9,700	393	15,800	563	21,900	717		
3,700	193	9,800	396	15,900	566	22,000	719		
3,800	197	9,900	399	16,000	569	22,100	721		
3,900	201	10,000	402	16,100	571	22,200	724		
4,000	205	10,100	405	16,200	574	22,300	726		
4,100	208	10,200	408	16,300	576	22,400	729		
4,200	212	10,300	411	16,400	579	22,500	731		
4,300	216	10,400	414	16,500	582	22,600	733		
4,400	220	10,500	417	16,600	584	22,700	736		
4,500	223	10,600	420	16,700	587	22,800	738		
4,600	227	10,700	423	16,800	589	22,900	741		
4,700	231	10,800	426	16,900	592	23,000	743		
4,800	234	10,900	429	17,000	595	23,100	745		
4,900	238	11,000	431	17,100	597	23,200	748		
5,000	241	11,100	434	17,200	600	23,300	750		
5,100	245	11,200	437	17,300	602	23,400	753		
5,200	248	11,300	440	17,400	605	23,500	755		
5,300	252	11,400	443	17,500	607	23,600	757		
5,400	255	11,500	446	17,600	610	23,700	760		
5,500	259	11,600	449	17,700	613	23,800	762		
5,600	262	11,700	452	17,800	615	23,900	764		
5,700	266	11,800	454	17,900	618	24,000	767		
5,800	269	11,900	457	18,000	620	24,100	769		

Appendix 2c. LCM Area Outer Cape Cod specific trap allocations based on individual fishermen's unique level of average landings. ***Find your average annual landings for the years 1997-2001 in the appropriate table for your area to see your predicted trap value.***

Average Pounds	Traps Allocated	Average Pounds	Traps Allocated	Average Pounds	Traps Allocated	Average Pounds	Traps Allocated
0	0	6,100	322	12,200	554	18,300	760
100	13	6,200	327	12,300	558	18,400	763
200	22	6,300	331	12,400	561	18,500	767
300	31	6,400	335	12,500	565	18,600	770
400	38	6,500	339	12,600	568	18,700	773
500	46	6,600	343	12,700	572	18,800	776
600	53	6,700	347	12,800	575	18,900	780
700	60	6,800	351	12,900	579	19,000	783
800	66	6,900	355	13,000	582	19,100	786
900	72	7,000	359	13,100	586	19,200	789
1,000	79	7,100	363	13,200	589	19,300	792
1,100	85	7,200	367	13,300	593	19,400	796
1,200	91	7,300	371	13,400	596	19,500	799
1,300	96	7,400	375	13,500	600	>19,537	800
1,400	102	7,500	379	13,600	603		
1,500	108	7,600	383	13,700	606		
1,600	113	7,700	387	13,800	610		
1,700	119	7,800	391	13,900	613		
1,800	124	7,900	395	14,000	617		
1,900	130	8,000	399	14,100	620		
2,000	135	8,100	402	14,200	624		
2,100	140	8,200	406	14,300	627		
2,200	145	8,300	410	14,400	630		
2,300	151	8,400	414	14,500	634		
2,400	156	8,500	418	14,600	637		
2,500	161	8,600	422	14,700	641		
2,600	166	8,700	425	14,800	644		
2,700	171	8,800	429	14,900	648		
2,800	176	8,900	433	15,000	651		
2,900	180	9,000	437	15,100	654		
3,000	185	9,100	441	15,200	658		
3,100	190	9,200	444	15,300	661		
3,200	195	9,300	448	15,400	664		
3,300	200	9,400	452	15,500	668		
3,400	204	9,500	456	15,600	671		
3,500	209	9,600	459	15,700	674		
3,600	214	9,700	463	15,800	678		
3,700	218	9,800	467	15,900	681		
3,800	223	9,900	471	16,000	685		
3,900	227	10,000	474	16,100	688		
4,000	232	10,100	478	16,200	691		
4,100	237	10,200	482	16,300	695		
4,200	241	10,300	485	16,400	698		
4,300	245	10,400	489	16,500	701		
4,400	250	10,500	493	16,600	704		
4,500	254	10,600	496	16,700	708		
4,600	259	10,700	500	16,800	711		
4,700	263	10,800	504	16,900	714		
4,800	267	10,900	507	17,000	718		
4,900	272	11,000	511	17,100	721		
5,000	276	11,100	515	17,200	724		
5,100	280	11,200	518	17,300	728		
5,200	285	11,300	522	17,400	731		
5,300	289	11,400	525	17,500	734		
5,400	293	11,500	529	17,600	737		
5,500	297	11,600	533	17,700	741		
5,600	302	11,700	536	17,800	744		
5,700	306	11,800	540	17,900	747		
5,800	310	11,900	543	18,000	750		
5,900	314	12,000	547	18,100	754		
6,000	318	12,100	550	18,200	757		